Lake Tahoe Water Quality Crediting Program

Accounting for NPS Improvements

May 6, 2008

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Overview

- Tahoe & Project Setting
- Credit & Program Characteristics
- Credit Uses
- Innovations for NPS Programs

Tahoe Setting Physical



Tahoe Setting Physical

- Lake Clarity TMDL
- Ultra Fine Sediment Pollutant of Concern
- Lake Responds within Years NOT Decades
- Urban Sources Dominate



Tahoe Setting Policy

- \$1 billion Environmental Improvement Program
 - 50% focus on water quality
- Municipal Stormwater NPDES Permit
 - Includes concentration effluent limits
- Science-based Policy

Tahoe Setting Water Quality Crediting & Trading Project

- Part of TMDL Development
 - In-lake process
 - Integrated Water Quality Management Strategy
 - Implementation Plan
- Targeted Watershed Management Grant from EPA
- Crediting Program Purposes
 - Motivate action & effectiveness to improve water quality
 - Increase flexibility for and cooperation between permitted entities



Water Quality Credit Credit Characteristics

- Whater with defect the FS Nutre New * Nmult + PLR * Pmult
- Anniuriation Accounting Period

 F.S. 1.0

 Requires Operations & Maintenance

 Share Risk of Uncertainty
- Basis for Monitoring & Adaptive Management

Site Level Crediting

Project Selection

Assess credit potential

Internal Site Design

- Design standards
- O&M plan
- Credit estimation

Approval Process

- Design review
- Permit approval(s)
- Credit schedule

Construction

Inspections

Reporting

Operation & Maintenance

Project Verification

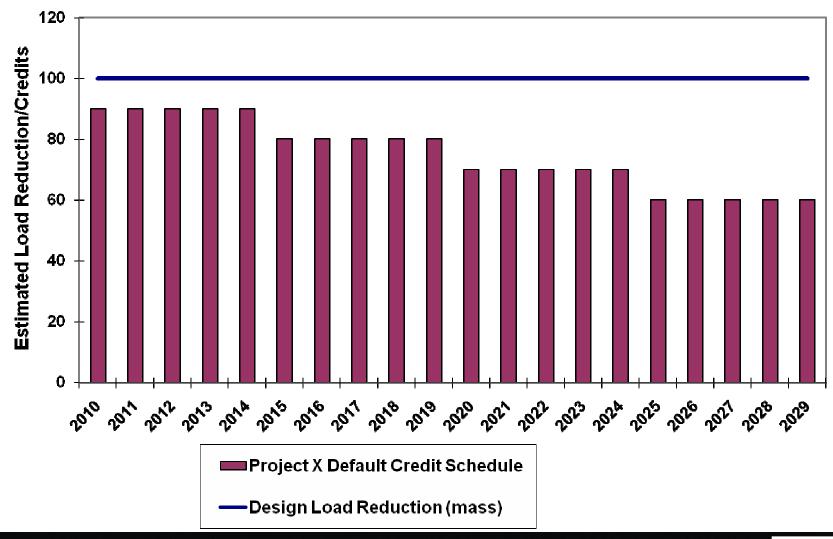
- As-builts
- Site visits
- Material testing
- Performance testing

Project Crediting

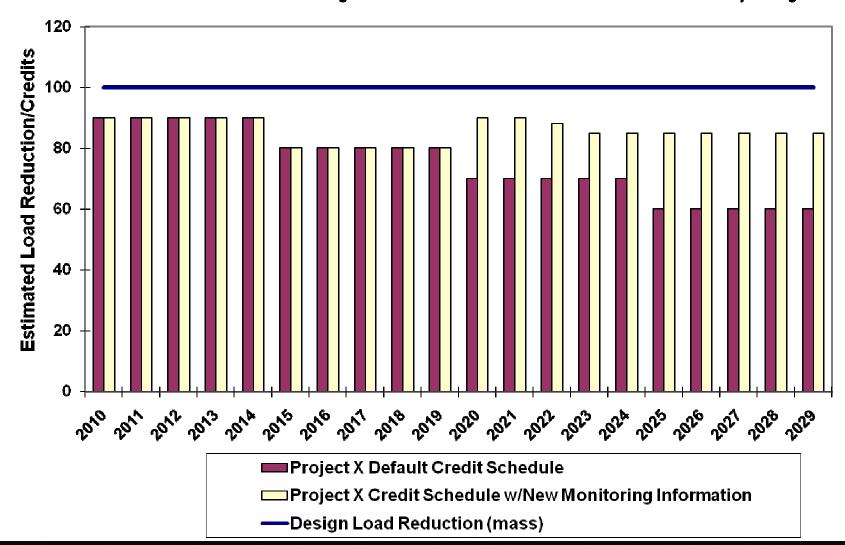
- Credit schedule adjustments
- Construction corrections



Credit Schedule for Typical 20 year Lifespan Project Assumes Proper O&M Illustrates Increasing Discount for Potential Effectiveness Loss with Project Age



Credit Schedule for Typical 20 year Lifespan Project Assumes Proper O&M Illustrates Increasing Discount for Potential Effectiveness Loss with Project Age



Entity/Permittee Credit Compliance

Overall Program
Adjustments

Permit Re-issuance

5-year cycle 1-year cycle

Compliance

- Credit acceptance
- Enforcement actions

TMDL Allocation/ NPDES Permit

- Effluent limits
- Credit requirements
- Schedules

Reduction Strategy

- SWMP
- Entity's credit projections

Performance

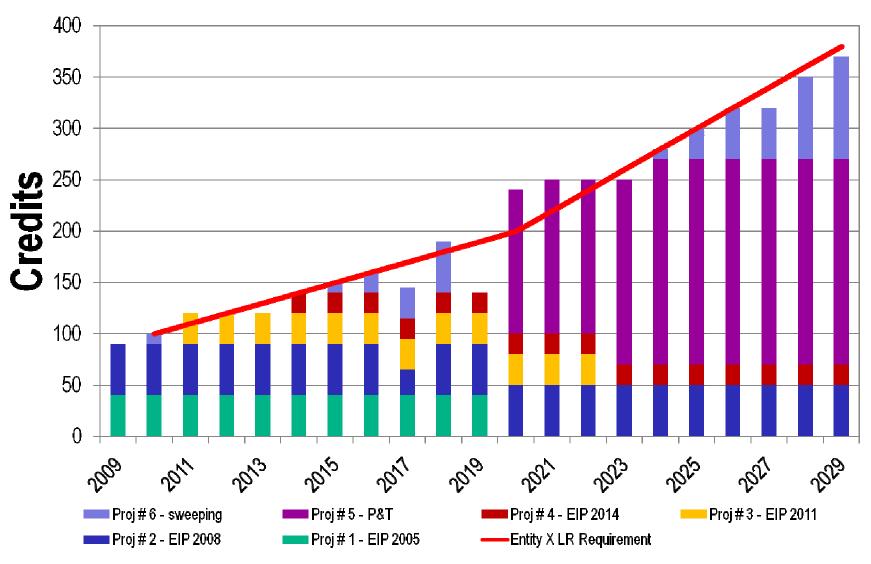
- Implement
- Operate
- Maintain
- Document (Sum individual activities)

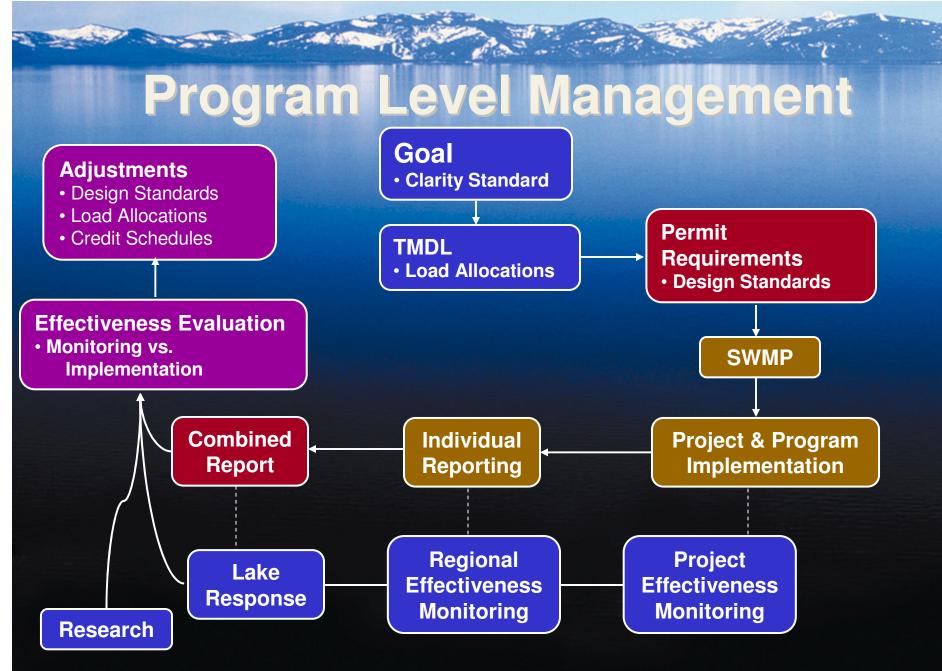
-Auditing-

Summary/Annual Report

- Credit declaration
- Compare reduction strategy against actual reductions

Credits Generated Each Year By Entity X Showing Credits for Each Project





Water Quality Credit 2-Sided Accounting & Tracking

Credit Accounting

- Fixed Credit Schedules
- Predictable with Completed
 & Planned Actions
- Basis for Permit Compliance
- Adjustments Made for Future Milestones

Load Reduction Tracking

- Initial Estimate of Expected Load Reduction
- Reflects Best Available
 Information = Changes with
 New Science
- Basis for Overall TMDL Implementation Tracking
- Urban & Non-urban Reduction Tracking



Water Quality Credit Uses

Expectation n of Project Bertefit

Information Incentives Permit & TMDL
Compliance
Tracking

Private Entity
Offsets

Programmati c Prioritization, Tracking & Reporting Payments for Water Quality Services

Buy Credits

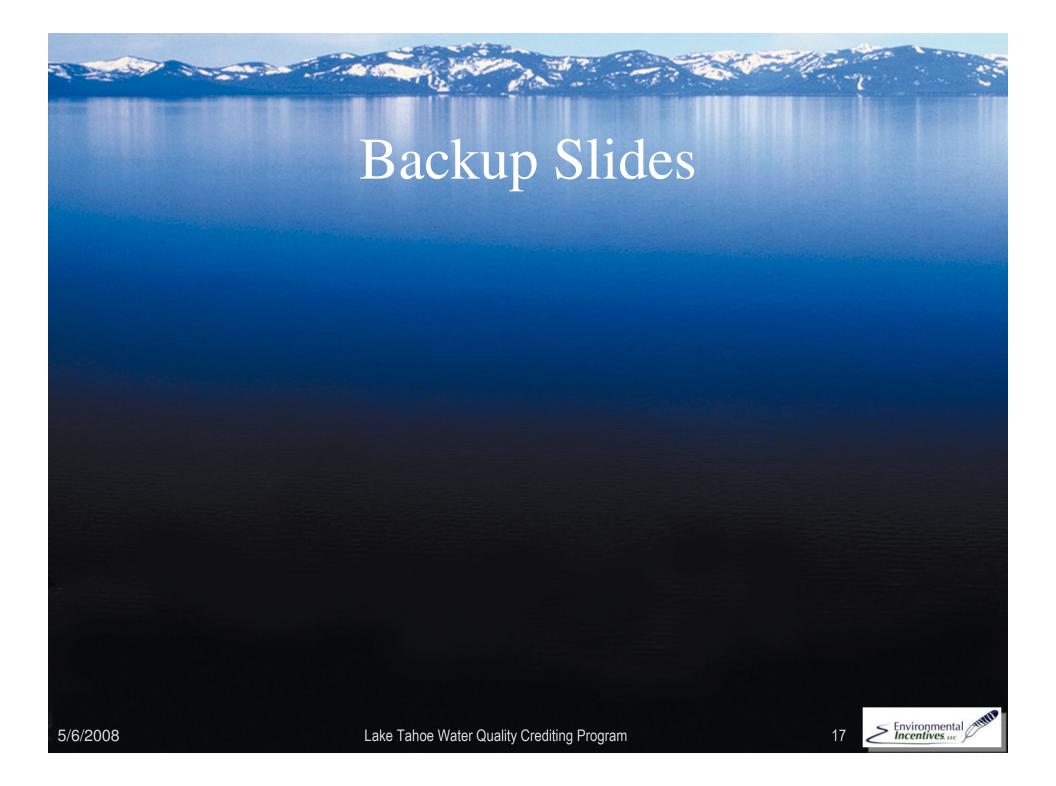
MultiJurisdiction
Project Credit
Sharing &
Geographic
Flexibility



Water Quality Crediting & Trading Innovations for NPS Programs

- Credits Define What You Want
 - Credit, Performance Measure, Unit of Benefit...
 - Define how to get it & relate to what other's want
- Credits Drive Transparency
 - Commit to reporting as normal operations
 - Align internal & external business practices
- Credits Enable Clear Reporting to Maintain Support
 - Funders need results legislators & tax payers
 - Those who show results are trusted
- Credits Are Basis for Flexible, Trading, Offset & Ecosystem Service-Based Policies





Strategic Levels of Program Detail

Site Level

Design Worksheet Elements

Design Standards Options

Site Application Process

Credit Schedule

Inspection Checklists

Project Verification

Credit Award

O&M Worksheets

Reporting

Training

Entity/Permittee

Compliance Milestones

Effluent Limits

Reduction Strategy

Performance Documentation Credit Calculation

Credit Declaration

Reporting (Tracking)

Enforcement

Permit Re-issuance

Program Management

TMDLs & Permits

Schedules

Credit Definition

Adaptive Management

Cumulative Tracking

Registry Outline

Monitoring

Reporting



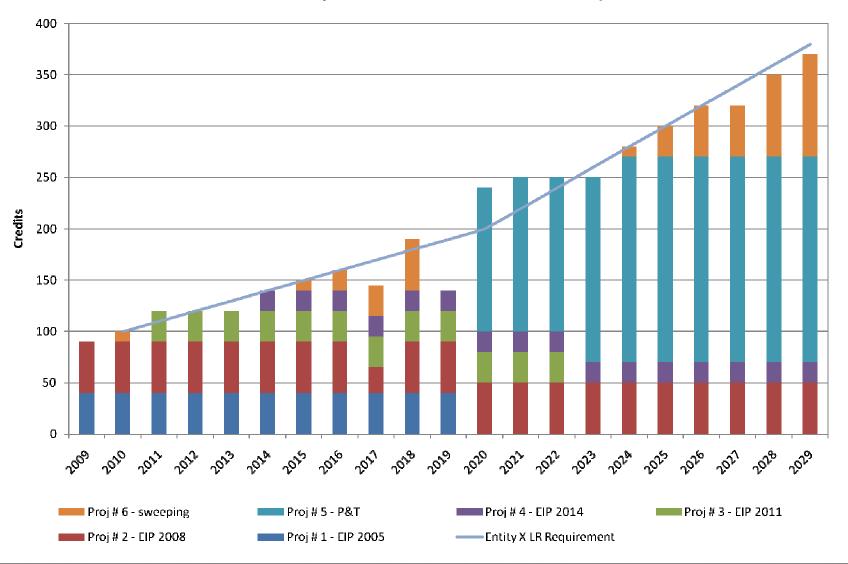
Program Purposes

- Primary Purposes
 - Motivate actions to improve water quality
 - Increase pace of achieving load reductions
 - Track permit compliance
 - Track progress towards meeting load reduction milestones
 - Reduce resistance to passage of the TMDL and increase acceptance of load allocations
 - Provide flexibility to public entities
- Potential Secondary Purposes
 - Enable additional development through a defined means to offset impacts



Lake Tahoe TMDL Management System Improve Lake Clarity to **Adapt** 29.7 m •Revise Model Parameters & C **Assumptions** •Revise Load Reduction Credit for List of Modeling Lake Clarity Parameters & Key Areas Actions Conceptual Model of Uncertainty & Risk for •Revise Implementation Strategies D Investigation Revise Load Allocations •Revise Clarity Goal/Timeline Integrated Water Quality Select Areas for AM Investigations Management Strategy TIE & Fund Experimental/ **Public** Load Allocations, Pilot Programs & Consultation Permits & Program Targets Targeted Research & Feedback Develop **Continual** Recommendations O **Improvement Active Adaptive** Develop Synthesis of **Management Check**_L **Findings** Implement Track Activities & Regulations Pathway **Load Reductions** & Programs Indicator Status **Implement** & Outside Monitor Experimental/Pilot **Drivers** Effectiveness Programs & Projects M Conduct Research

Credits Generated Each Year By Entity X Showing Credits for Each Project



Credits Generated Each Year for All Urban Entities

